JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS APRIL/MAY-2012
IMAGE AND VIDEO PROCESSING
(DIGITAL SYSTEMS AND COMPUTER ELECTRONICS)
Time: 3hours   Max.Marks:60
Answer any five questions
All questions carry equal marks
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1.a)   With the help of detailed block diagram explain the basic building blocks of digital image processing.
  b)   Explain the 'Checker board effect' and 'False contouring effect' in digital images.

2.a)   What are the advantages of wavelet transforms when compared to other transforms.
  b)   Discuss about the discrete wavelet transforms.

3.a)   Explain about the histogram specification process with a suitable example.
  b)   Discuss about spatial low pass filtering process with the help of a mask.

4.a)   Differentiate thresholding based and region based segmentation methods.
  b)   Explain the concept of 'Region split & merge' algorithm for segmentation.

5.a)   Explain the terms coding redundancy, spatial redundancy and temporal redundancy in digital images.
  b)   Calculate the average length using Huffman coding for the example given below.

Symbol	probability
A1	0.1
A2	0.4
A3	0.06
A4	0.1
A5	0.04
A6	0.3

6.   Explain about LZW coding, Bit plane coding and Run length coding using suitable examples.

7.a)   Distinguish between analog video and digital video .
  b)   Discuss about Geometric image formation & Photometric image formation.

8.   Discuss about the following 2-D motion estimation techniques in video processing
  a)   Pixel based motion estimation
  b)   Mesh based estimation.

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